Civic Groups

Key Messages: Civic/Adult Presentation

- Breathing polluted air is unhealthy, but you can't always tell if the air is polluted by how it looks. The Air Quality Index, or AQI, can help.

- Two main air pollutants are ozone pollution and particle pollution. Ozone pollution is invisible and is formed when certain chemicals react in the presence of heat and sunlight. Ozone pollution may aggravate asthma and bronchitis, and cause premature aging of the lungs. Particle pollution (microscopic particles of dust, dirt, smoke, and liquid droplets) can aggravate asthma and cause bronchitis or even premature death due to heart or lung disease. Symptoms from breathing polluted air can include coughing, breathing difficulties, and asthma attacks.

- There are two types of ozone. The ozone we breathe at ground level is bad. But very high in the atmosphere is a natural layer of ozone that is good because it protects us from the sun's harmful ultraviolet rays.

- Some people are at greater risk from breathing ozone pollution or particle pollution. Sensitive groups for ozone pollution include active children and adults, and people with lung disease. Sensitive groups for particle pollution include people with heart or lung disease, older adults, and children.

- You can protect your health in three ways when the air is polluted:

    1. Find out the air quality each day and the forecast for the next day by checking the AQI (Air Quality Index), like you would the weather report. The AQI uses color-coding to represent air quality ranging from good (green) to very unhealthy (purple). You can find the AQI and related health messages on the Internet at: www.airnow.gov . Some newspapers and TV or radio weather reports also include the AQI.

    2. If you're outside when you *know* the air is polluted, protect your health by taking it easier. For example, walk instead of run, exercise for half your normal time, or exercise at another time or on another day when the air is cleaner. Exercise away from busy roadways.

    3. If you notice symptoms when you're outside, such as coughing, pain when taking a deep breath, chest tightness, or wheezing, stop what you're doing and switch to a less strenuous activity. This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease. Check with your doctor if you have these symptoms. People with heart disease should check with their doctor before engaging in vigorous outdoor exertion when particle levels are high.

- People's activities (such as transportation, energy use, and materials production) and nature (such as forest fires or volcanic eruptions) can cause air pollution.

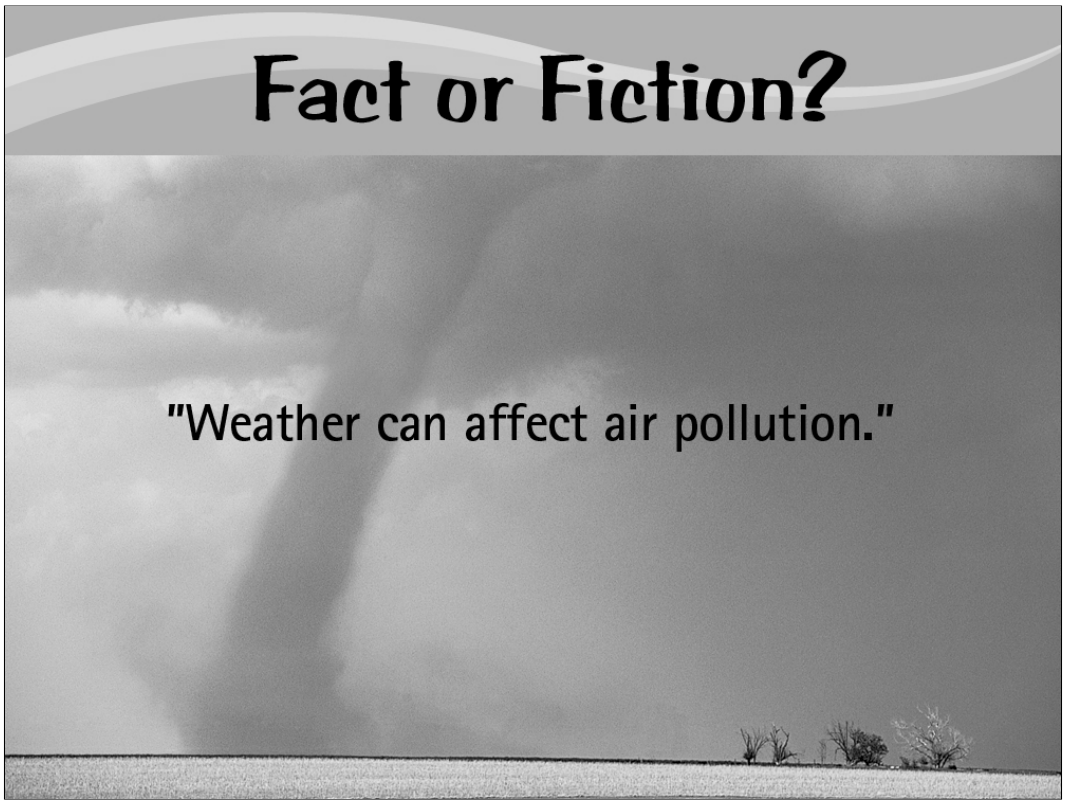
- You can help reduce pollution: Drive less—walk, bicycle, carpool, or use public transportation when possible. Turn off lights and appliances when you don't need them. Cut back on heating and cooling when you can. Insulate your home. Only run full loads in your washing machine and dishwasher. Purchase energy-efficient products (look for the "Energy Star" label).

Long version:
Civic Groups presentation

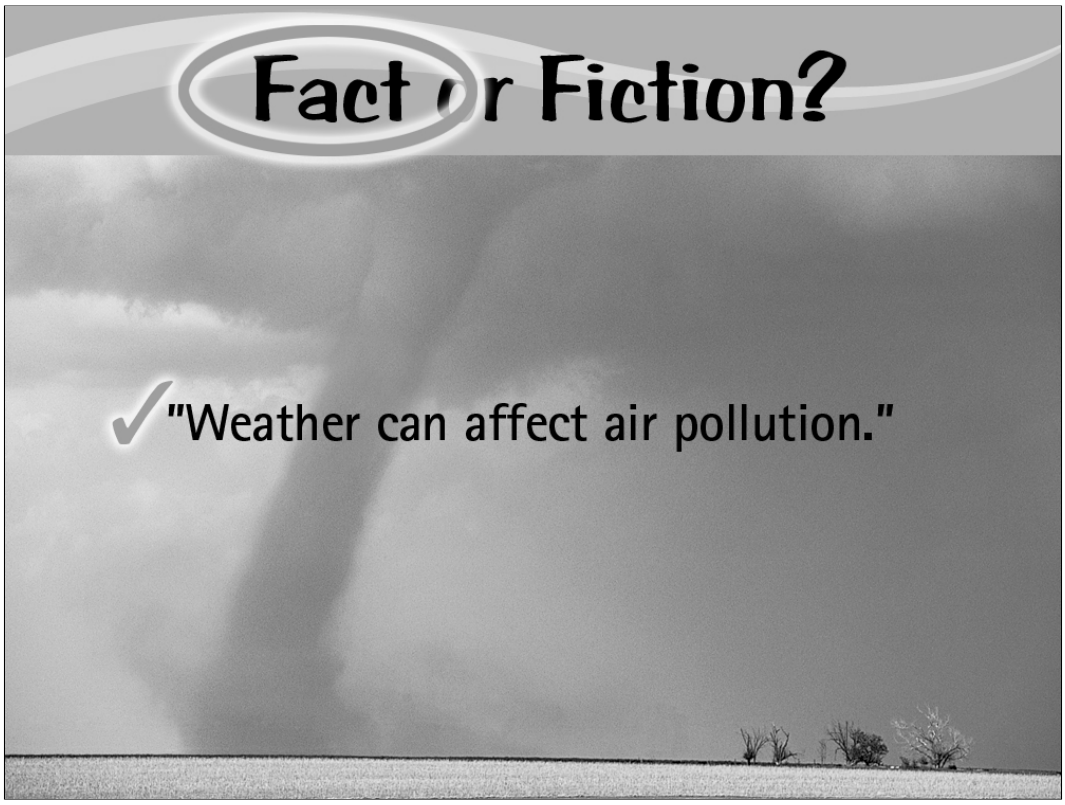
Notes Pages: Civic Groups
Long version

- I'd like to talk about how weather relates to air pollution, and how air pollution affects health.
- Air pollution can have a number of health effects, some of which can be quite serious.
- The good news is that there now are several things you can do to protect your health when the air is polluted. The best way to protect your health is to find out when pollutant levels are high in your area, using the Air Quality Index, or AQI, and take simple precautions to minimize your exposure.
- I'm going to start by making some statements about weather and air pollution and ask whether you think they are fact or fiction. First I will ask everyone who thought the statement was true to yell out "fact." Then I'll ask everyone who thought it wasn't true to yell "fiction."
- *[Note: Depending on the "personality" of the group you are talking to, you can also get their votes by asking them to raise their hands rather than using a voice vote if this feels more comfortable.]*

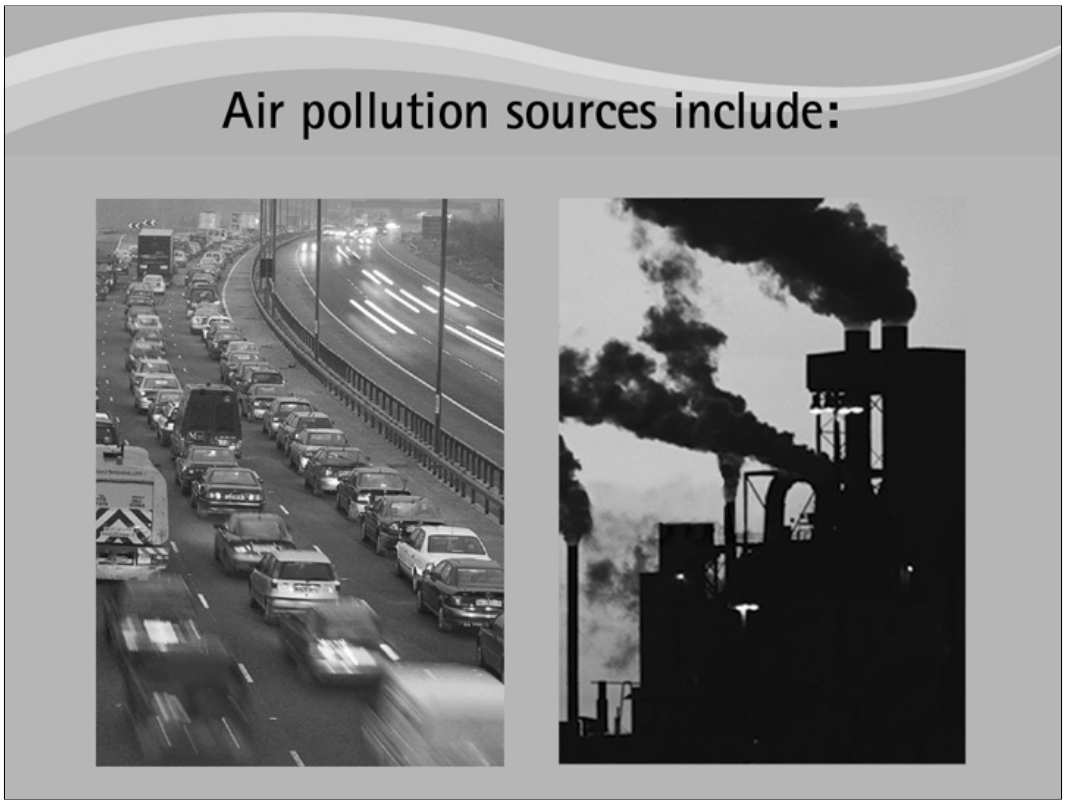
- First fact or fiction statement: "When weathercasters give the weather forecast live on the evening news, they point to a blank screen, not a map, to show you what the weather is going to be."
- If you think this statement is true, on the count of three, yell out "fact." If you think this is false, yell out "fiction."
- *[Elicit the "fact" and "fiction" responses from the audience.]*
- The statement is true. We weathercasters are always pointing to a blank screen when we give you the weather forecast. The maps you see are put into the image electronically. You get to see them, but we don't.



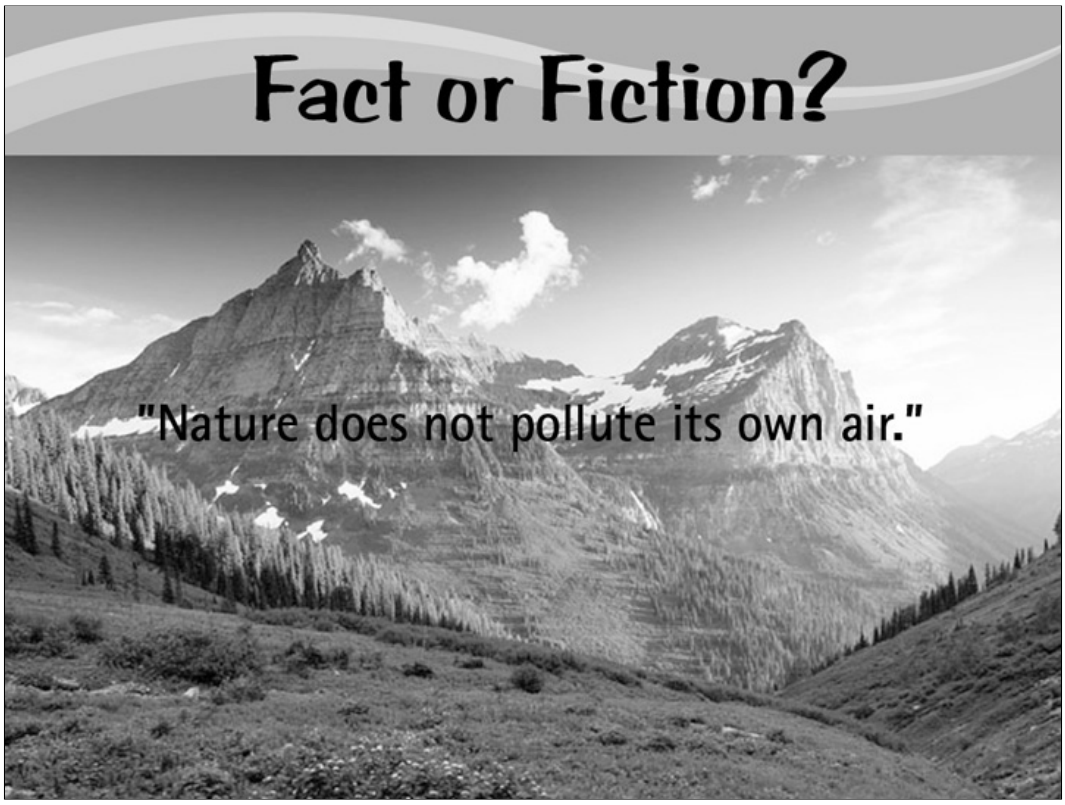
- Here's another statement. Fact or fiction?
- *[Elicit the "fact" and "fiction" responses from the audience.]*



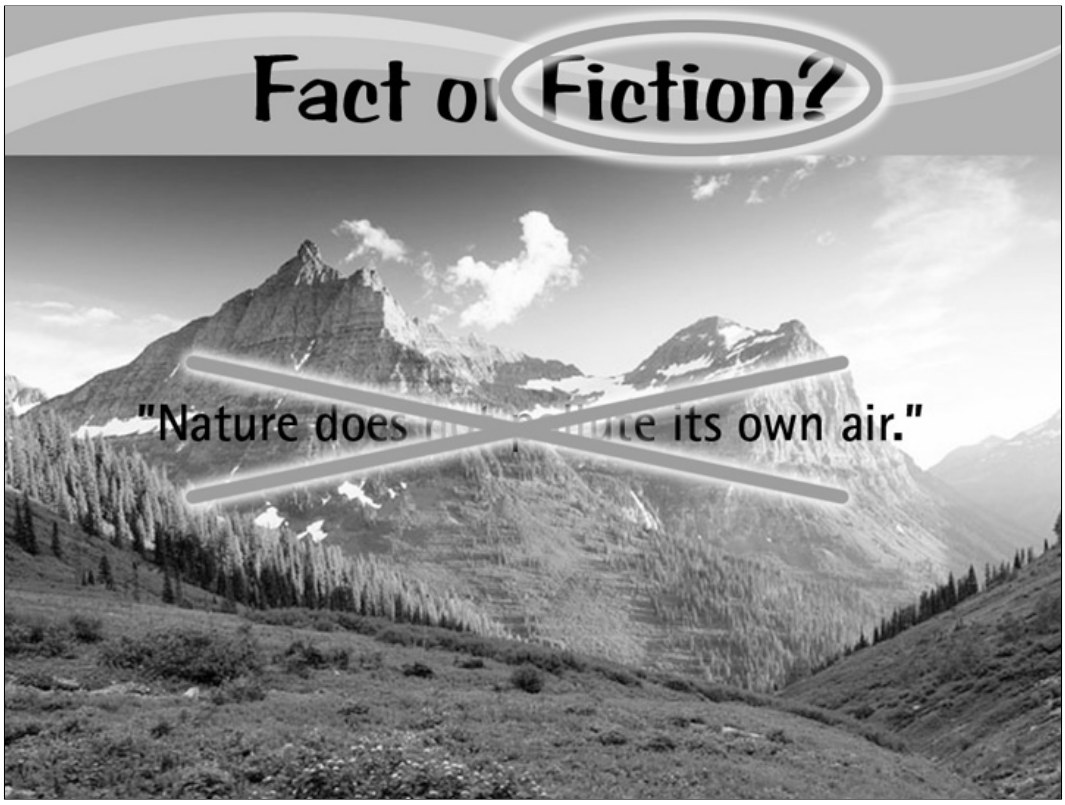
- True. Weather can affect air pollution in a number of ways.
- For example, the wind can move air pollution around, blowing it away from its source, and into areas hundreds of miles away - into other states and even other regions entirely, where it can have a significant impact on air pollution levels.
- One example of this is air pollution from power plants in Ohio, which often is transported to the New England and Mid-Atlantic states. This makes it a challenge for some New England and Mid-Atlantic cities to comply with air pollution regulations, because they can't control pollution from sources in other states.
- Weather can also affect air pollution in other ways. Sunlight and warm temperatures can contribute to the formation of certain types of air pollution.
- Also, during thunderstorms, the fast-moving air disperses pollutants, and the rain cleanses the air.
- High pressure and stagnant conditions can also affect air pollution. In a high pressure system, the air is stagnant, which keeps pollutants where they are.



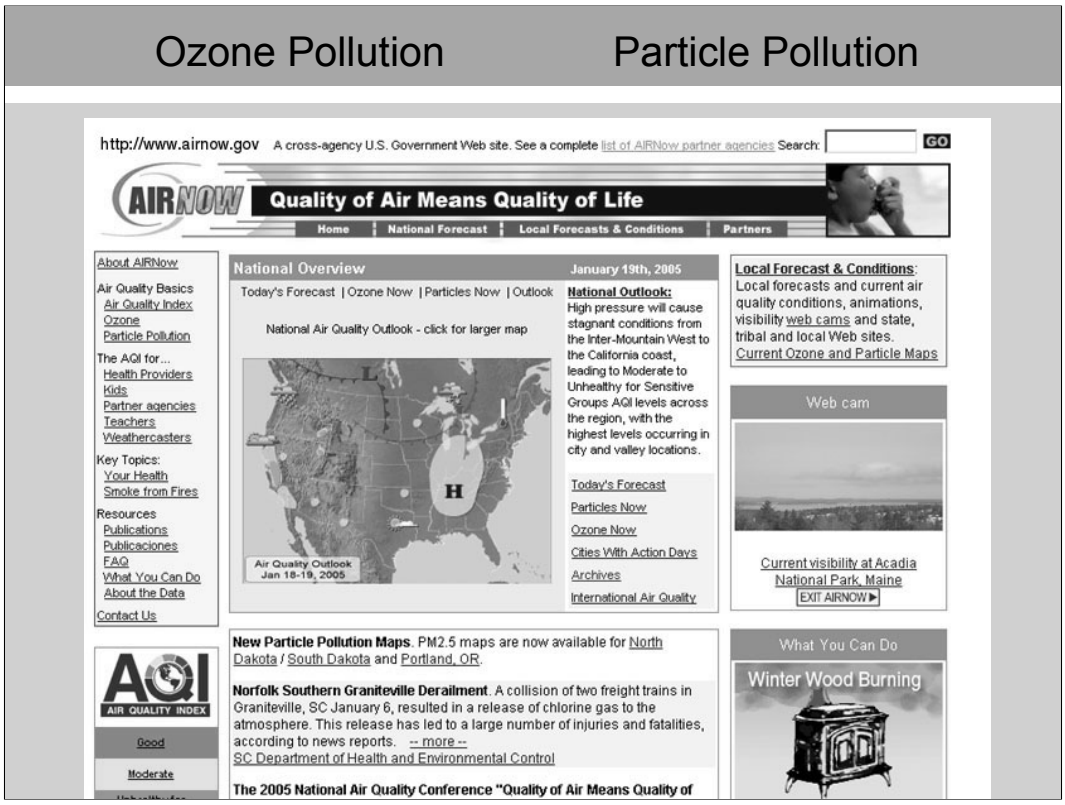
- Air pollution comes from a number of different sources.
- Vehicles, power plants, and chemical plants are some of the biggest pollution sources.



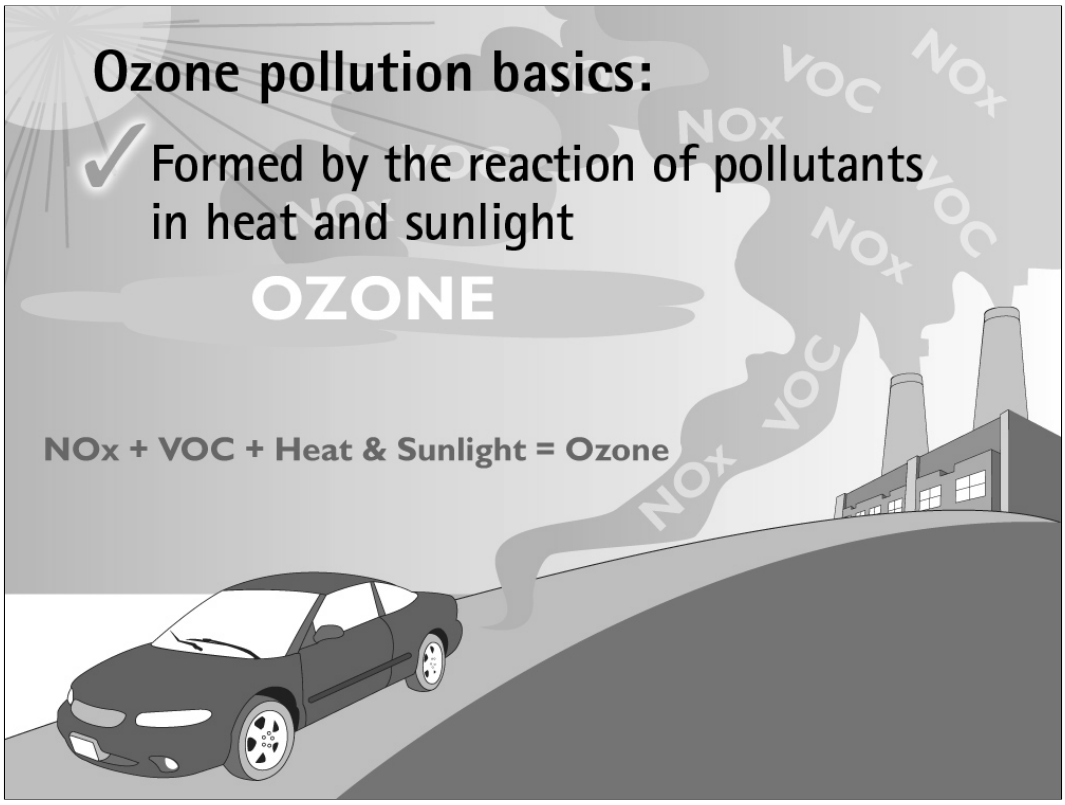
- Here's another statement - fact or fiction?
- *[Elicit the "fact" and "fiction" responses from the audience.]*



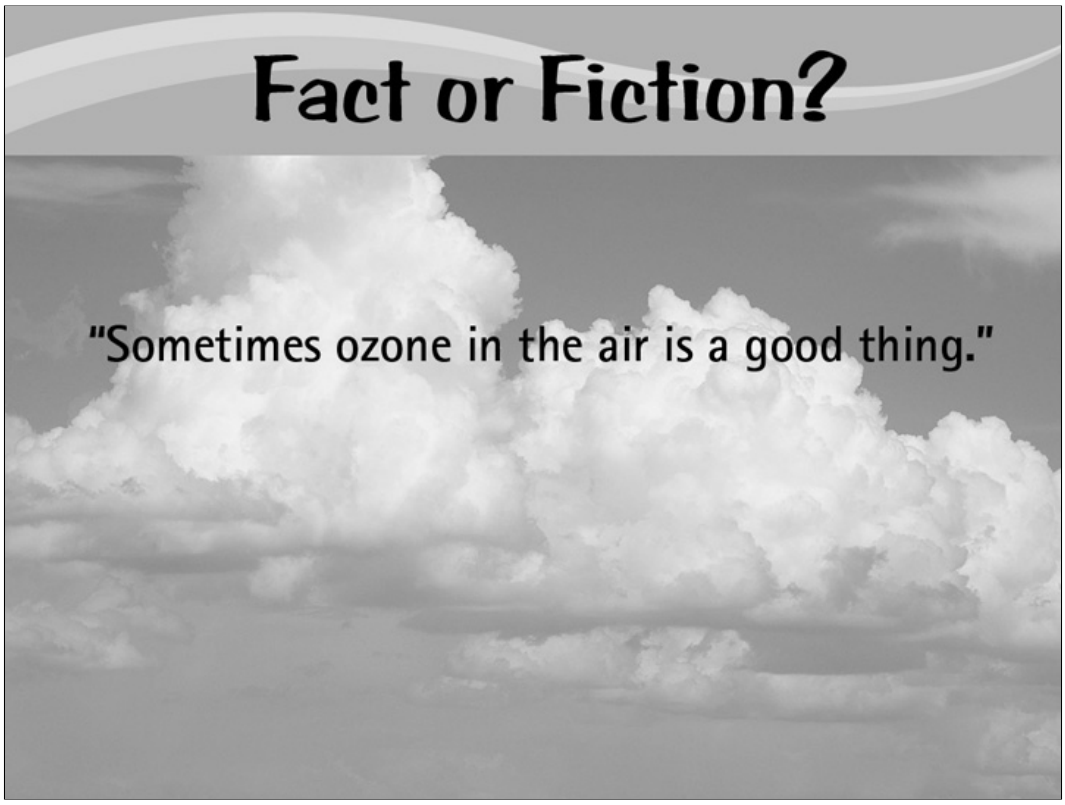
- Fiction.
- There are several natural sources of air pollution, including forest fires and volcanoes.



- I'm going to talk about two types of pollutants today: ozone pollution and particle pollution.
- The Air Quality Index, or AQI, provides daily, color-coded maps and health information about these pollutants.
- The AQI can be found on EPA's AIRNow website, which looks like this.
- The AQI can also often be found in newspapers in the weather section, and also on TV and radio news reports.



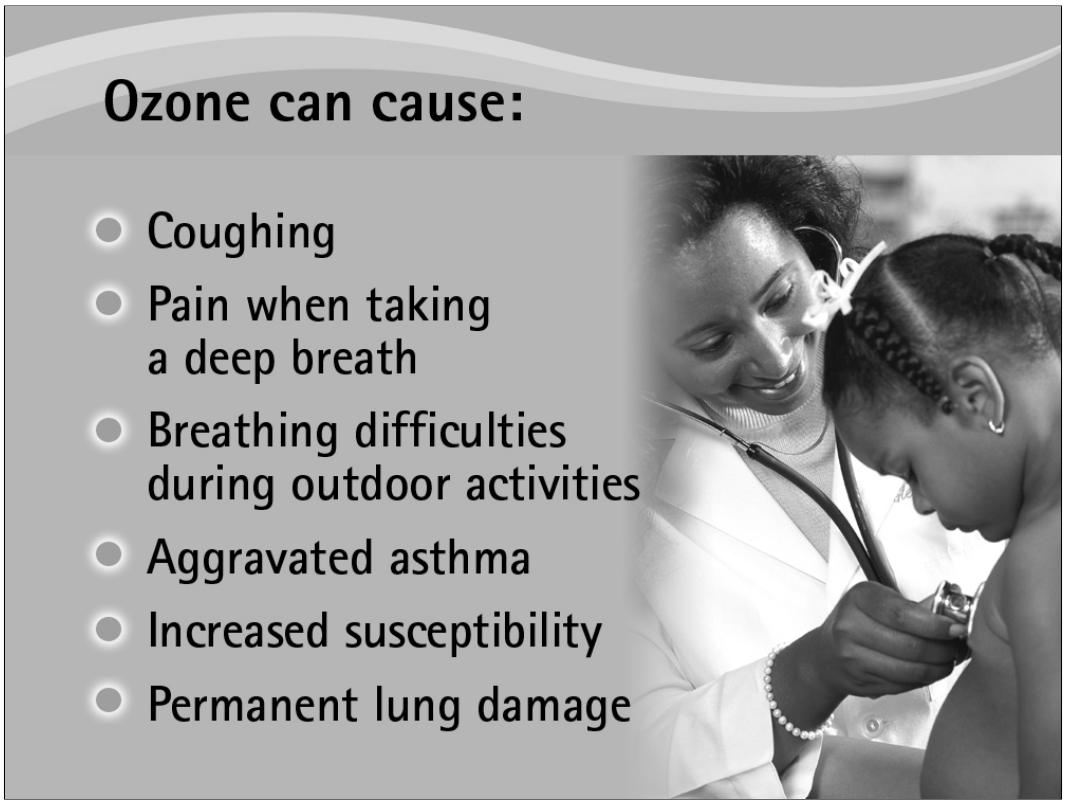
- Ozone pollution is formed when pollutants called nitrogen oxides and volatile organic compounds, or VOCs, react in the presence of heat and sunlight.
- Vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOCs .



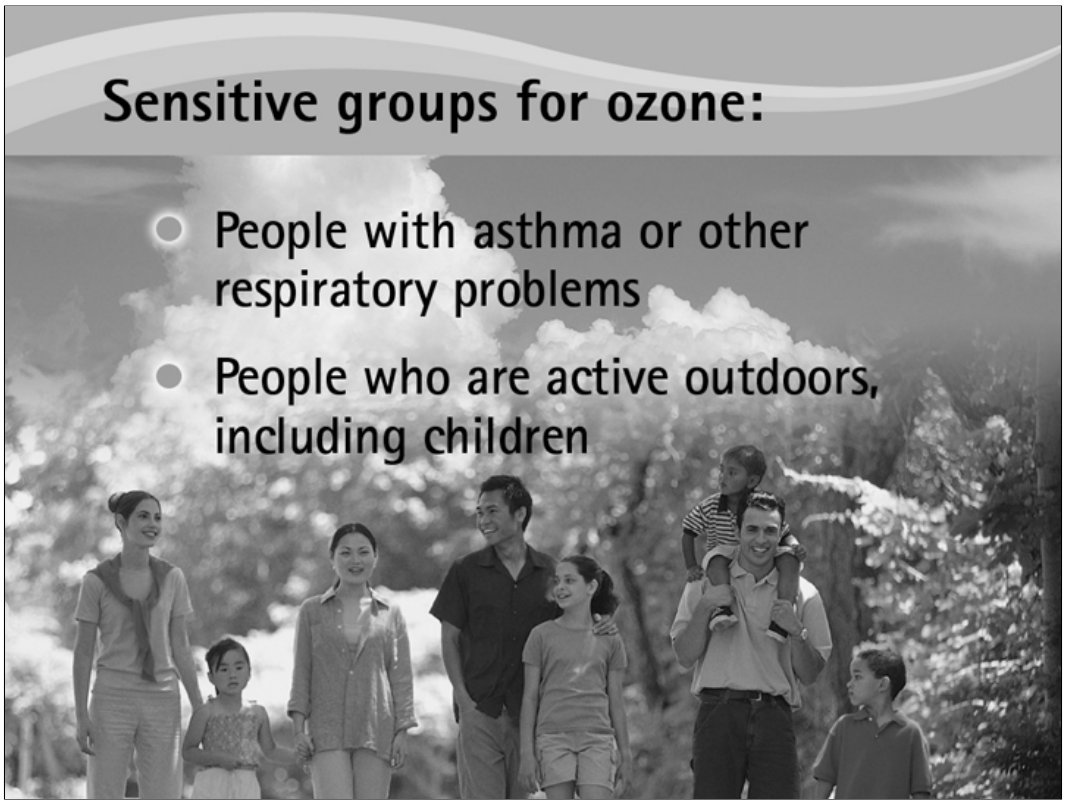
- Here's another fact or fiction statement for you.
- *[Elicit the "fact" and "fiction" responses from the audience.]*

- Fact. Ozone in the air we breathe here at ground level is bad.
- But very high up in the atmosphere, there's a natural layer of ozone that protects us from getting too much of the sun's harmful ultraviolet radiation.

- Because heat and sunlight are needed to form ground-level ozone, ozone levels are a concern in warmer months.
- This is another way in which weather influences air pollution.
- In fact, the length of the ozone season varies depending on the weather. Southern and southwestern states may have an ozone season that lasts nearly the entire year. For more northern states, the ozone season generally is limited to summertime.
- Wind can transport ozone hundreds of miles from where it formed, so it can be found in both urban and rural environments.



- Ozone can trigger a variety of health problems, including aggravated asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.
- Symptoms to watch for when ozone is at unhealthy levels in the air include: coughing, pain when taking a deep breath, and breathing difficulties, especially when you are active or exercising outdoors.
- But health damage from ozone can also occur without any noticeable signs. Repeated exposures to ozone can change the structure of the lungs, leading to premature aging of the lungs.

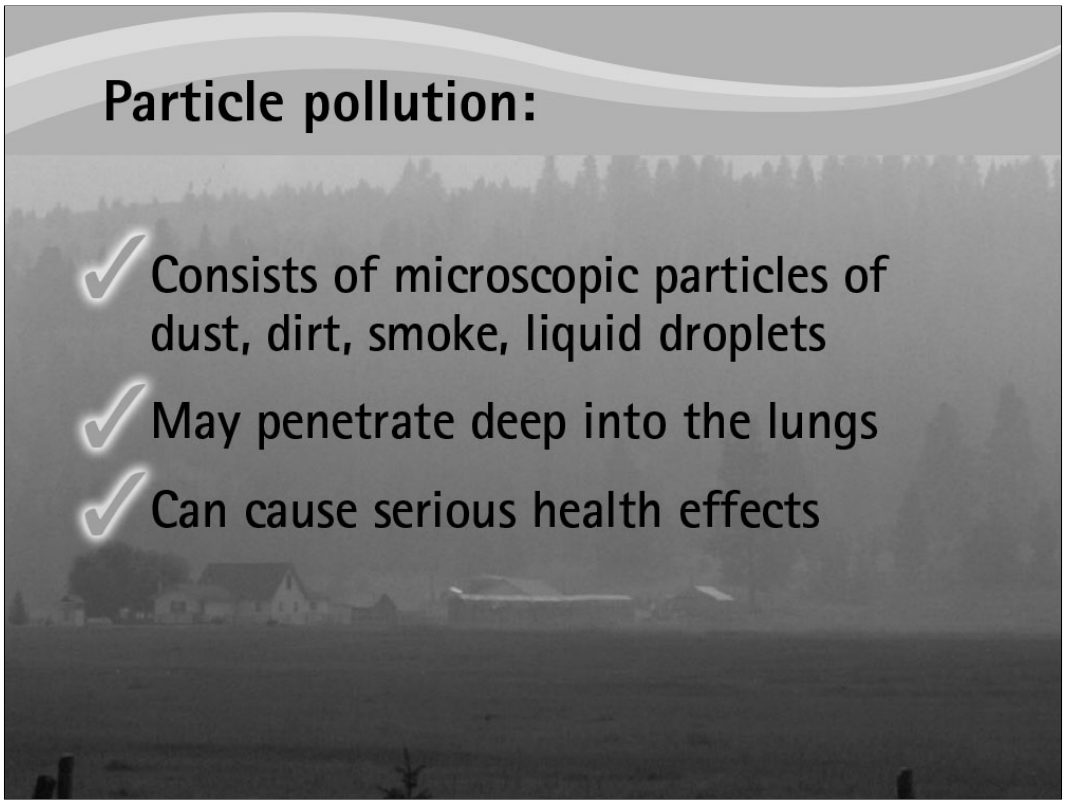


- Some people are more sensitive to ozone than others.
- Scientists estimate that about one in three people in the United States is at higher risk for experiencing ozone-related health effects.

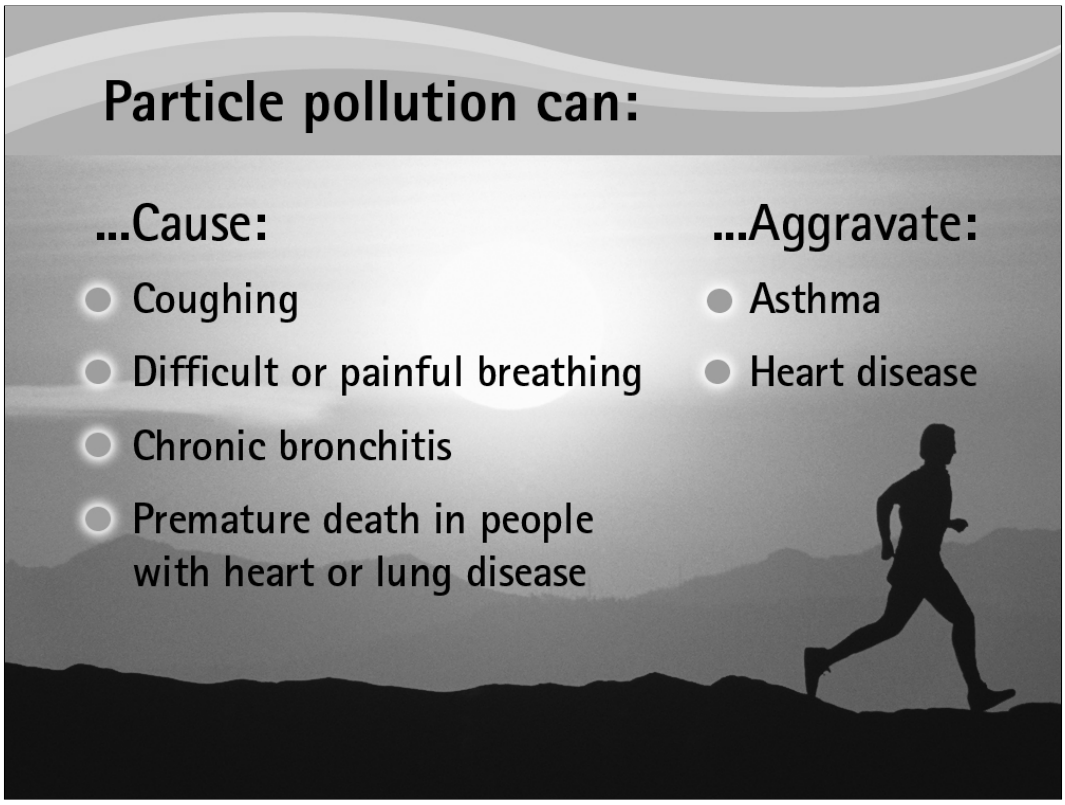
- Ground-level ozone also is not good for the environment. It damages plants and trees and reduces crop and forest yields.
- So, ozone pollution often is not good for people and not good for our environment.

- Another key air pollutant that can affect people's health is called particle pollution.
- Particle pollution is caused by many human activities and by some natural sources.
- It's formed directly from sources such as vehicles, factories, power plants, and smoke from forest fires.
- Particle pollution can be higher near busy roads and factories.
- Particle pollution is also formed indirectly by weather-related conditions or events.
- Particle pollution can occur at any time of year, but it can be especially bad during winter, when the weather is calm, allowing particle pollution to build up.
- This phenomenon is called a temperature inversion.

- In a temperature inversion, cold air is trapped under warmer air above it.
- This is a reverse of normal conditions, in which temperature decreases as you go higher in the atmosphere.
- During an inversion, air pollution is also trapped under the warmer air.
- The photo on the left shows an inversion over the city of Boston.
- The photo on the right shows an inversion in a rural area.
- When particle pollution levels are high outside, as in these pictures, they are often high indoors as well.



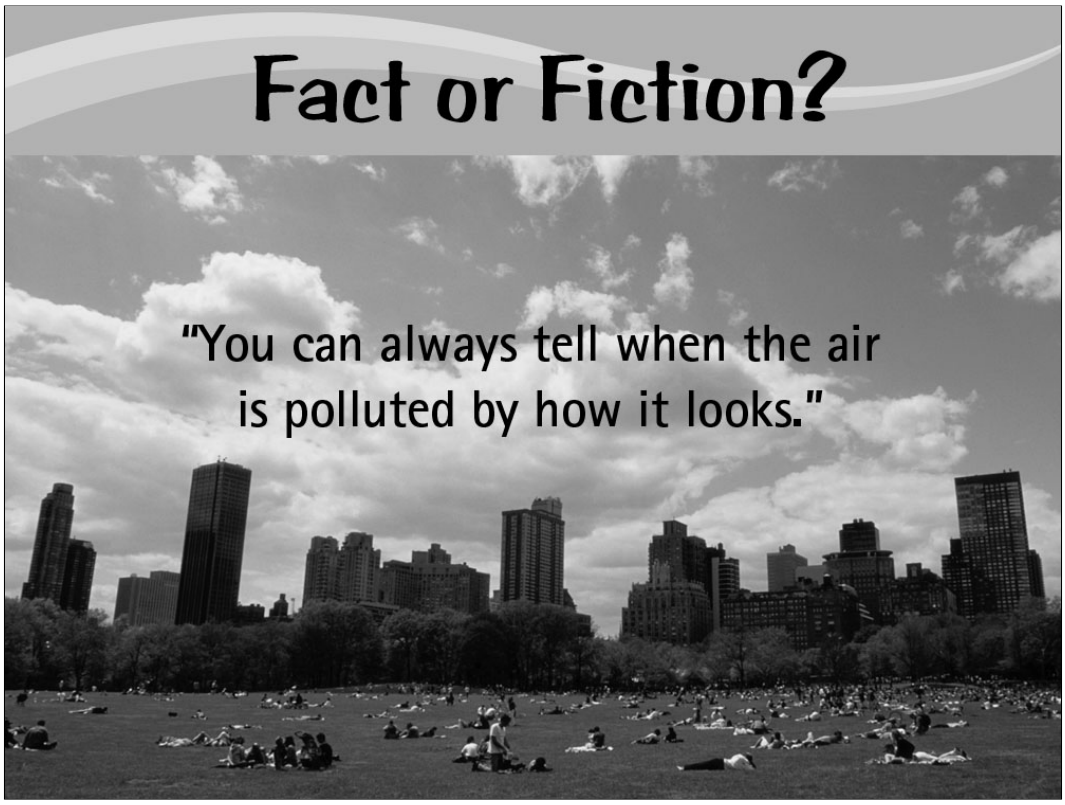
- Particle pollution consists of tiny, microscopic particles of dust, dirt, smoke, and liquid droplets containing any number of chemicals.
- This photo shows particle pollution from Montana forest fires in the year 2000 in the Bitterroot Valley. This was actually a day of light smoke during the fires.
- The smaller particles are the greatest health concern because they can penetrate deep into your lungs and may even get into your bloodstream.



- You can see that particle pollution causes quite a range of health effects, from coughing and chronic bronchitis to aggravated asthma and heart disease, and even premature death in people with heart or lung disease.
- Many studies link particle pollution levels with increased hospital admissions and emergency room visits.

- As with ozone pollution, some people are considered to be at greater risk from particles than others.
- People with heart or lung disease are at risk because particle pollution can aggravate these diseases.
- Many studies show that when particle levels are high, older adults are more likely to be hospitalized, and some may die of aggravated heart or lung disease.
- Children are at risk because their lungs are still developing, they breathe more air per pound of body weight, and they are usually very active.

- Particles also affect the environment. They are a big part of haze, which reduces visibility.
- You may have noticed haze when visiting national parks. We often don't get the views we expect at our treasured natural areas due to haze.
- The left side of this slide shows the Great Smoky Mountains National Park on a hazy day; the right slide shows the same area on a clear day.
- Particles also make rain and other forms of precipitation more acidic, which harms the environment in a number of ways.
- So, as with ozone pollution, high levels of particle pollution often are not good for people and not good for our environment.



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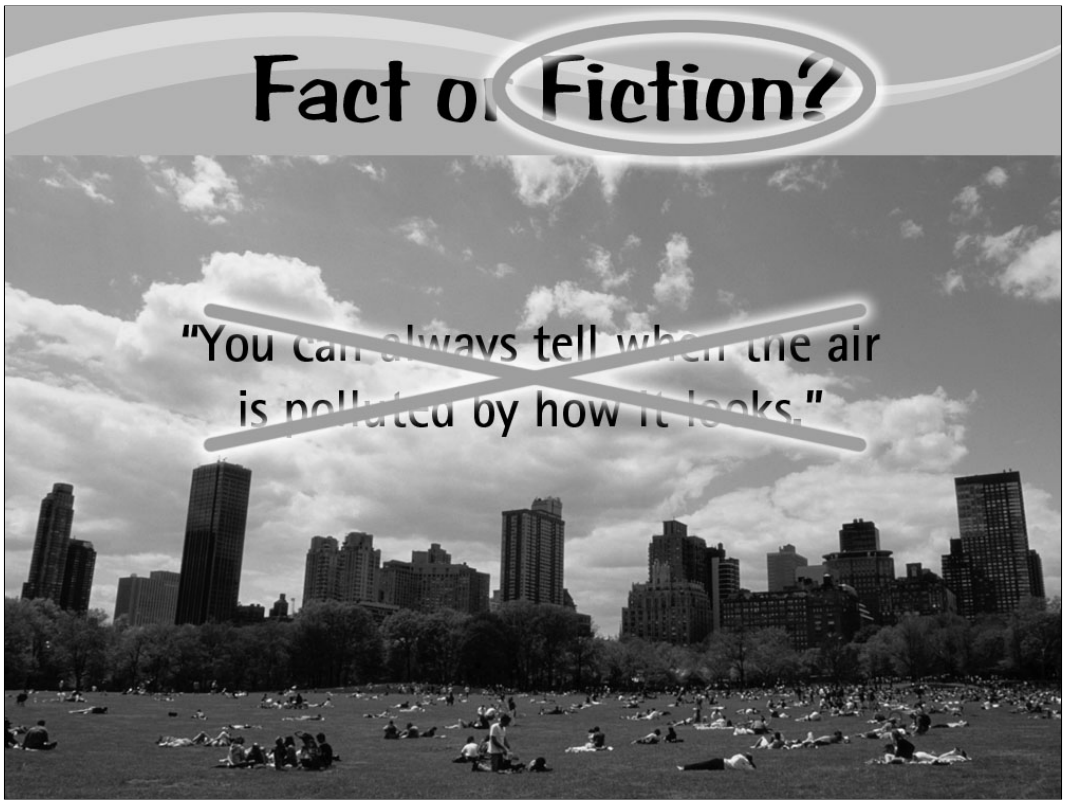
- *[Elicit the "fact" and "fiction" responses from the audience.]*



- Fiction. Polluted air often does look dirty. But sometimes air that looks clean may be polluted.
- On EPA's AIRNow Web site, you can check whether the air is polluted and can get air quality forecasts for your area.